THE
VETERINARY RECORD.
The Official Journal of the National Veterinary Medical Association of Great Britain and Ireland, Limited.
FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 1740. VOL. 33]. NOVEMBER 12, 1921. [NEW SERIES, No. 46, VOL. I.

Eradication of Sheep Scab.

The question of the eradication of sheep scab was dealt with by Mr. W. J. Young, F.R.C.V.S., D.V.S.M. (Vict.), in an address delivered at the annual conference of the Blackface Sheep Breeders' Association, held at Perth on September 7th.

In the course of his paper, Mr. Young, who represented the Ministry of Agriculture and Fisheries, said :—

The considerable prevalence of sheep scab is one of the unfortunate features of the statistical returns of animal diseases in Great Britain. It has engaged the attention of the Ministry of Agriculture and Fisheries, flockmasters, sheep owners, scientific workers, and the officials of the central and local authorities for many years, yet our best efforts have not succeeded in ridding the country of a pest which is costing vast sums of money annually. Public opinion has been intensifying in recent years against the continuance of this great disability, and demands are insistently being made for adequate means to be adopted to eradicate the disease. The disease decreases the amount and value of wool, brings down the condition of the stock, engages the energies of hundreds of men, and burdens the country with a huge expenditure.

For a very long time it has been definitely known that the disease is due to the presence on the skin of a mite or acarus—*Psoroptes communis var. ovis.* The mature mite measures 1/40 to 1/50 of an inch, and the female is somewhat larger. They can be readily seen with the naked eye, but in order to differentiate from other parasites that are found on the skin it is advisable to use a lens or microscope with a low power.

The life history of a disease-producing parasite is very important, because when that is known the best means of eradication can be worked out, and if the disease is one that demands legislation, then orders can be framed accordingly. Compare in this connection the life histories of the parasites causing sturdy and liver-fluke in sheep ; in these conditions preventive treatment is based on a knowledge of the parasites and their habitats at various stages in the life history. For some years the operations against scab were of a tentative character, owing to the fact that research was in progress concerning the life history of the acarus. Thanks to the patient and world-famous researches of Sir Stewart Stockman, M.R.C.V.S. Chief Veterinary Officer of the Ministry of Agriculture, and Mr. A. Holman Berry, F.R.C.V.S., Superintending Inspector, many stages in the development of the parasite have been elucidated. In the words of Sir Stewart Stockman, the life history is as follows :—

(*a*) The eggs hatch in from two to five days, four days being the average time, but, according to some observers, hatching may take as long as eleven days.

(*b*) The larvæ moult into nymphæ—time occupied, four days.

(*c*) The nymphæ moult into adults—time occupied, four days.

(*d*) The female adults moult, and lay eggs ; the time occupied by this stage does not appear to have been accurately determined, but the duration of the whole cycle is stated at twelve to sixteen days, twenty-three days being the longest by calculation.

The acari have been found to remain alive off the sheep for a month to six weeks at the longest, but most of them die before this time. Most of the eggs are said to hatch out in a few days, but they have been observed to hatch two and even four weeks after removal from the sheep.

PRESENT-DAY LEGISLATION.

The principal order dealing with the disease in Great Britain is the Sheep Scab Order of 1920. Other orders are the Sheep Scab Order of 1914, and the Sheep (Double Dipping) Order of 1920. The provisions of the latter order can be applied to any area in which the Ministry considers that compulsory general double dipping is necessary in order to clear the area of sheep scab, and also to areas in which there is reason to believe that sheep scab may exist unreported. While aware that there is a certain amount of hostility to the dipping regulations, I am satisfied that there is a general acquiescence that at last a genuine effort is being made to stamp out this scourge.

It is as well to remind you that where sheep scab exists or is suspected, it is the duty of the person in charge or the owner of the sheep to give notice of the facts to the nearest police officer. Veterinary surgeons are also required to report cases which they encounter in the course of their practice to the police. The local authority must conduct an enquiry into the suspected case, with the aid of a qualified veterinary surgeon. If the existence of disease be confirmed, detention, isolation, and dipping notices have to be served. Compliance with the provisions of such notices is of very great importance. A note of warning is here necessary. The conditions on these notices are very strict, but it must be borne in mind that the Ministry has power (and shall exercise its power) to make more stringent ones if the present

methods fail through the want of adequate co-operation on the part of sheep owners. As an official I hope this will not be necessary. From 1st December, 1920, the compulsory single dipping of sheep in Great Britain ceased. Under the Sheep Scab Order of 1920, power is given to local authorities to make regulations for the periodic dipping of sheep in their district, and for the dipping of sheep moved into their district from the district of other local authorities or from Ireland, and for the keeping of registers by sheep dealers. The practical experience gained from the study of numerous outbreaks and from exhaustive experiments has proved conclusively that two dippings at a short interval of not more than fourteen days between the dippings are essential for the purpose of eradicating scab, inasmuch as it is possible for eggs of the acari which are not destroyed by the first dipping to be hatched out and become active means of spreading scab after a period of about 10-14 days, unless destroyed by a second dipping within that period.

The Ministry has approved of regulations submitted by local authorities for single dipping. Approval of such regulations is only granted after the disease position of the district has been investigated. There is nothing to hinder any sheep owner from carrying out a double dipping at any time he desires, but he must be careful to obey the provisions of the law. Regulations of a protective character—framed for the dipping of sheep entering the district of a local authority—are only approved of by the Ministry if the regulations prescribe a double dipping within a maximum interval of fourteen days between the dippings. Details of the regulations that are in force in your district can be obtained from the clerk of the local authority or chief constable.

Dipping "Don'ts."

In Great Britain the official method of dipping is by total immersion in a dip approved or purporting to be approved by the Minister of Agriculture. There are about 400 dips approved. The prescriptions for three very useful dips are given in the schedule of the Sheep Scab Order of 1920, and are reprinted in the Ministry's leaflet on Sheep Scab. The strength in which the dip is to be used and the time of immersion are stated on the labels of the manufacturer. It is imperative that the maker's instructions should be carefully read and obeyed. Many farmers and others have informed me that they consider the dips are not strong enough, and that they invariably use them one and a half times stronger or double the strength directed. This is a bad practice, and not commendable. It is injurious to the sheep, wasteful, and frequently gives rise to distressing ailments of the udder in ewes. On many occasions, when I have been told on arrival at a dipping place that double strength was being used, I have found that there has been an error in the calculation of the capacity of the bath. It must be borne in mind that the chemicals used for dipping require careful handling—not only owing to their poisonous nature, but also owing to their chemical composition. Repeatedly I have seen paste dip placed in a pot or old sheep dip drum, and the contents allowed to boil on a peat fire. The result was a considerable loss of the volatile active ingredients. Infinite pains have been taken to instruct owners and shepherds in the proper way to prepare paste preparations.

Another bad practice that is frequently encountered is the mixing of arsenical and cresylic preparations. This is highly objectionable, and defeats the objects of dipping. The dipping orders definitely say the sheep shall be dipped in *a* dip—not a mixture of dips. An article is inserted in the Orders of 1920 concerning the use of mixed dips.

When arsenical dips are used for double dipping, the Ministry permits half strength to be used at the second dipping.

Dipping should never be hurriedly done. That is probably the most important sentence I have yet spoken. My heart has been sore many times when I have seen a large number of sheep gathered in the afternoon and dipping commenced late in the day. The gatherers had walked many miles and were exhausted. No place existed wherein to put the sheep for the night, and the result was that dipping was carried out in a slipshod and perfunctory manner. A case came to the notice of the Ministry where sheep were rushed through a four-foot bath at the rate of about 170 per hour. Why such things are done is difficult to comprehend. Owing to the hilly and mountainous nature of many parts of Great Britain, the complete gathering of the flocks for dipping and other operations is very difficult. All available help is necessary, and in co-operation is the secret of success in the campaign of eradication. Many times I have been very much impressed with the stubbornness and cunning of Blackface ewes in their attempts to thwart the endeavours of the gatherers. The unfenced mountain areas cause very much trouble. A good suggestion is that sheep at the first dipping should be kieled or coloured, and this suggestion has been embodied in some regulations. In the eradication of sheep scab, dipping (I prefer to call it disinfection) must be considered a necessity.

Much research work has been done concerning the action of the various chemicals used as sheep dips. In a paper read by me in June, at Folkestone, on "Disinfection and Disinfectants," I gave the following summary of the manner in which disinfectants acted :—

1. Destruction by oxidation.
2. Destruction by ionic poison with coagulation.
3. Destruction by coagulation and poisoning not ionic in character. For example, carbolic acid and its derivatives.
4. Destruction by emulsoid action, that is, through Brownian movement and adsorption.

The quality of the water used for dipping is important. Soft water should be used if possible. Sea water, brackish, and peaty waters are highly objectionable.

In some cases, we know it is impossible to obtain any other than permanently hard water for mixing dips. It is then necessary to " break " the water by the addition of carbonate of soda (ordinary washing soda) in the proportion of 1 to 4 pounds per 100 gallons of water. I consider the addition of a detergent agent is very beneficial in treating affected sheep.

The suggestion is here thrown out that the agricultural colleges throughout the country might be asked to test the waters and inform owners as to the best means of rendering the water suitable for dipping purposes. When possible, dips should be used at a temperature of about 100 degrees Fahr., as the disinfecting and penetrating actions of the dips are thereby increased. The greatest care should be taken to keep the dipping solutions or emulsions up to strength.

Care should be taken thoroughly to cleanse dipping places on completion of the dipping. Research workers, chemists, analysts, dipping bath makers, and officials have all done their bit towards eradication; it now remains for sheep owners and their servants to make a supreme effort to stamp out the disease. A combination of intellectual and muscular energy is essential in process of disinfection.

Prevention of Infection.

Sheep brought on to the farm from markets, from wintering, or from other holdings, should be dipped twice within fourteen days and isolated from others for that period. Rams should be most carefully examined and double dipped after purchase. Sheep that have been taken to a market and brought home unsold should receive a double dipping on return to their former grazings, as it must be borne in mind that live stock markets are great disseminators of disease. Farmers should demand local authorities to have a veterinary surgeon in attendance at all sales (whether in public markets or displenishing sales of sheep at farms). When sheep have to be sent by rail to a market, it is also advisable to observe if the railway truck appears to have been properly cleansed and disinfected. The officers of the local authority are called upon to see that the Transit Order of the Ministry of Agriculture is obeyed, but it is impossible to see every truck used for carriage of live stock cleansed and disinfected. Stock owners should resolutely refuse to place their stock in dirty trucks.

It is advisable to direct your attention briefly to several items in which research has been made:—

1. The possibility of the parasite of sheep scab maintaining its existence on animals other than sheep or of the psoroptes of such animals producing scab in sheep has been carefully investigated, and it has been found that the parasite of goat scab is able to live and reproduce itself on sheep, but all attempts to set up scab in sheep with the goat psoropt have failed. The original infecting parasite died out in less than ten days, while the second generation usually dies on reaching nymphal stage, and in no case has a third generation been observed.

2. Sheep scab acari placed on the bodies of goats quickly die or disappear. It is desirable, however, to dip goats that have been in contact with sheep.

3. Parasites from rabbits affected with mange, when placed on sheep do not survive longer than seventeen days.

4. There is no evidence to show that the acarus of sheep scab is able to maintain its existence on any animal other than sheep, and so continue sheep scab infection in the absence of its particular host.

5. All attemps to infect other species of animals with sheep scab acari have failed.

6. Acari are known to be unable to live for more than a month to six weeks apart from the sheep.

7. A report was recently published of experiments carried out by Mr. H. H. Curson, M.R.C.V.S., Veterinary Research Laboratory, Grahamston, South Africa, in connection with the length of time a kraal would remain affected with scab. Mr. Curson found, as the result of repeated experiments, that if scabby sheep were taken out of a kraal and the kraal left empty for sixteen days, and if clean sheep were then put into the kraal the latter would remain free from scab. In other words, the kraal was not able to retain the infection for a period of sixteen days.

The Secrets of Success.

It must be apparent to you that the veterinary surgeons in different parts of the world are doing their utmost to eradicate scab. At a meeting of the National Veterinary Association of Great Britain, held at Chester last July, my suggestion that a popular lecture for stockowners should be given at each centre where the association held its annual meeting was adopted. The help of the Law Courts, Sheriffs, and Magistrates is also necessary.

You can assist by having proper dipping appliances and utensils, dipping slowly and carefully, keeping careful records of your sales and purchases, reporting cases of skin ailments that you do not understand, and by actively helping each other. At the present time, unfortunately, financial assistance cannot be expected from H.M. Treasury for the erection of public dipping places. It is possible that a scheme of local taxation in districts where scab is rife may have to be enforced. Breeders' societies, farmers' unions, and agricultural societies might also contribute towards erecting dipping places. Your financial help towards research is always welcome and appreciated. There is still much to learn even about sheep scab. The eradication of sheep scab calls for a display of personal as opposed to material capital. By personal capital we understand the skill, ability, genius, and disposition of the individual—capital which is owned to some extent by every one connected with agriculture. Vigorous and sustained endeavour should be your watchword; indifference and apathy and slackness must have no place.

According to the Department returns, over 6,000 more horses were used in agriculture in Ireland this year than last. So the motor tractor is not getting all the custom.

The Veterinary Record.

12th November, 1921.

ANIMAL DISEASES RESEARCH.

The annual report of the Animal Diseases Research Association for 1920-1921 deals in a brief but comprehensive manner with the history, objects, organisation and progress of the Association from its inception at a meeting of representatives of various Scottish agricultural and breed societies in the early part of last year.

At a public meeting, held on March 17th, 1920, the first directors were appointed, and Sir Robert Greig, on behalf of the Board of Agriculture, undertook to press the Development Commissioners to give the Association a full measure of financial support; this support, however, naturally depends upon that which the Association receives from stock-owners in Scotland.

The objects of the Association are twofold: to direct investigations into the communicable diseases of farm stock, with a view to the improvement of the sanitation of the stock and pastures; and the application of available knowledge to everyday agricultural practice.

The scheme appears to be excellent, so far as it has gone, but care and foresight on the part of the thirty Directors who are eventually to be elected by the members in the several districts will be very necessary.

If the objects of the Association are to be attained in any measurable degree, the *modus operandi* will require special care and attention.

In so far as the investigation of animal diseases is concerned, valuable advice will, no doubt, be furnished by the two veterinary members of the joint committee of investigation, Dr. Bradley and Professor Gaiger.

It would appear to us to be a *sine qua non* that not only the organisation of this branch of the work, important as it undoubtedly is, but the actual laboratory investigations should be carried out by men who possess an accurate knowledge of the conditions which govern the origin and spread of diseases of live stock, and of the best methods to be adopted for their control and ultimate elimination, and should therefore be in the hands of veterinary surgeons, who alone can lay claim to be experts in comparative pathology.

In a recent *post prandial* oration a well-known member of Parliament voiced the surprise of a certain committee that medical men did not undertake such work, and ascribed the reason to the fact that paltry salaries were offered for such posts. There is no shortage of highly-trained comparative pathologists, but there is a lamentable shortage of adequately remunerative appointments.

The veterinary profession will do well to have a care that the present vogue for worship at other shrines than its own does not tend in any way to rob its specially-qualified members of posts which obviously belong to them, and to them alone.

Abstracts and Reviews.

Concerning Vitamins.

The subject of accessory food factors has become popularised, and one now sees advertisements in omnibuses which appeal to the public to buy food rich in life-giving vitamins. In such advertisements and in the pseudo-scientific articles which appear in the lay press the word is generally spelt "vitamine," which is how it used to be spelt by scientists until it became known that whatever they were these substances were *not* amines, and so physiologists agreed to drop the final "e," preferring a word which was etymologically meaningless to one which conveyed a wrong impression. The current number of the *Bio-Chemical Journal* (Vol. XV., No. 4) contains three articles which ought to interest those who produce animal food, and wish to cater for a popular demand which is scientifically sound even if it somewhat is overdone. Animals cannot synthesise vitamins themselves, so all animal products which contain these substances must have become thus enriched directly from food eaten.

One of the articles (pp. 530-539) is by Dr. J. C. Drummond and Miss K. H. Coward, and deals with the question of how plants obtain the fat-soluble vitamin A. They conclude that the chlorophyll of the green leaves has the power of synthesing this vitamin from inorganic salts, and they found that all plants, even marine algæ, which contain chlorophyll can build up this dietary factor, as can also, to a less extent, plants—like red-weeds—which are adapted for photosynthesis by the possession of pigments other than chlorophyll. Such plants as mushrooms, which are devoid of pigments playing a role in carbon assimilation, are almost completely deficient in vitamin A. It is in green leaves, then, that vitamin A is to be found most abundantly, and from them it can be extracted by fat solvents, appearing in that fraction of the fat which is resistant to saponification.

Another article (pp. 540-552), by the same authors, is concerned with the factors which influence the value of milk and butter as sources of vitamin A. The authors' own summary is as follows:—

"(1) The diet of the cow is undoubtedly the chief cause of variations in the amount of vitamin A in milk. Season, apart from the consequent diet, and breed are not the cause of any marked variation.

"(2) Colostrum normally proves to be richer in the vitamin than the later milk.

"(3) Butter appears to be less potent as a source of fat-soluble A than the same amount of fat supplied in the original milk. The loss, as far as we can ascertain, is partly mechanical and partly due to destruction.

"(4) Certain processes used in butter-making which involve exposure to air at high temperatures are believed to cause a loss of the A factor. This applies especially to some of the less frequently adopted methods, such as "blowing" to remove objectionable odours.

"(5) Butter shows wide variations as a source of the vitamin A. Most of this variation arises from differences in the diet of the cow. We have confirmed our previous observations on the low vitamin value of butter produced during the winter months from cows stall-fed on dry feed of hay, roots and cake. Even the drying up of pasturage in a hot summer may lower the value of the butter.

"(6) The storage of butter and its preservation by such methods as tinning do not appear to lower the vitamin A value unless changes of an oxidative character take place. Modern improvements in methods all tend to minimise loss from this cause.

"(7) Destruction of vitamin A occurs during the processes of rancidity if oxidation plays much part in this change, but considerable development of free acid may occur without loss of the accessory factor if oxidation—as indicated by bleaching of the natural pigments—is prevented.

"(8) The 'renovation' of rancid butter will entail further loss of vitamin if the methods employed are likely to cause oxidation."

The third article (pp. 489-493), by A. D. Stammers, shows that *bran*, besides being moderately rich in the anti-neuritic vitamin B, contains also a certain amount of vitamin A, so that rats which received this accessory factor from no other source were able to grow slowly. This indicates that bran may well form a larger portion of the winter ration of stall-fed cows.

H. E. H.

Relation of Corpus Luteum to Pyometritis.

Pyometra is a condition of the uterus in which there are chronic inflammatory changes of the uterine mucosæ characterised by sacculation of one or both of the horns and flaccid muscular walls with little or no contractile power due to a loss of muscle tone. The uterus is asymmetrical, abdominal in position, and one or both horns are partially filled or distended with pus. The cervix is inflamed and more or less dilated. This pathologic condition most often occurs in cows which have suffered with retention of the fœtal membranes, but is known to occur in cases where the membranes were promptly discharged after calving. One of my colleagues working with the bacterial flora of this condition has in the large majority of cases been able to isolate *Bacillus pyogenes*, which is apparently the predominating organism in these types of infection.

The history of pyometra is as follows: The owner or herdsman in describing these cases states that the affected animal has not been in estrum since calving, and that a small pool of pus is as a rule found back of her after she has assumed a recumbent position. They also notice that there is more or less straining of the lips of the vulva, together with collection of pus on the under surface of the tail. In innumerable instances cows suffering with pyometra are allowed to go for a period of six or seven months before the services of a veterinarian are employed. In the treatment of pyometra, unless begun early, the prognosis should always be guarded, the reason for this being that even though the uterus undergoes complete involution and estrum is regularly established, the regeneration of the mucous membrane is so slow that attachment of the fertilised ovum is made difficult. Or in cases where the ovum does become imbedded, early abortions are not infrequent.

The veterinarian who is experienced in the treatment of sterility fully appreciates the value of the dislodgment of the corpus luteum in the successful treatment of pyometra. In cows where the disease has been present only a short time, the corpus luteum will frequently be found near the surface of the ovary, but in the long-standing cases the yellow body will be found to be more centrally located, and therefore more difficult of ablation. The dislodgment of the corpus luteum in its entirety is responsible for such rapid changes in the uterus that one wonders at so much power being invested in so small a structure. Not only does the uterus promptly discharge its contents through the re-establishment of muscle tone, but it also changes rapidly, morphologically, regaining its symmetry and normal anatomical position within a very short time. Estrum frequently, though not regularly, appears within three to five days, especially in cases where tissue destruction has not been extensive. In the treatment of pyometra it is deemed best to siphon off the contents of the uterus before attempting to remove the yellow body. In this way the ovaries can be more readily and safely examined. The uterus can be retracted so that the ovary or ovaries can be without difficulty brought into the pelvic cavity, when the corpus luteum can be manipulated through the vagina. If the yellow body is deeply situated, it should be removed per vagina, and no doubt this procedure should be followed regularly. We have, however, removed a large number of corpora lutea by pressure exerted through the rectal walls without bad results. In carrying out some experiments with pyometra we decided to remove the corpus luteum without attempting to siphon off the contents of the uterus, which, if performed, undoubtedly facilitates involution.

[BOYD, W. L., *Journal American Veterinary Association*. October, 1921.]

Clinical and Case Reports.

The Editor will be glad to receive from members and others contributions to this column of reports of interesting cases.

A Nervous Disorder following Gastro-Enteritis in Cattle.*

By W. ACKROYD, ESQ., M.R.C.V.S.

Incidence.—Recently symptoms very similar to those I am about to describe have been noted by different writers as occurring after retention of the lochia, and also after certain mineral poisonings such as lead.

In my own practice the majority of these cases are in cattle calved for some time, and usually after milking well for a month or two; but cases also occur in cattle in calf, and also occasionally in stirks. The greatest incidence, however, is in the spring and at the time of turning out to grass, which in this district is late.

Symptoms.—The majority of cases seen are reported to have *suddenly* shown nervous symptoms, sometimes trembling of various muscles, as in the neck, flank, etc., straddling and stiff movements of the legs, grinding of the teeth or sometimes lateral movement of the jaws, without grinding of the teeth, licking persistently at various parts of the body or legs; but the commonest set of symptoms are strikingly like the excitable form of milk fever. Some animals bellow and are violent, breaking horns and becoming fixed in awkward positions if in a stall, or attempt apparently to get out of the stall. In other cases the cow is found down, unable to rise and in some cases no other symptom but decubitus is noted and this without any premonitary symptoms whatever.

In some cases there is a violent convulsion or fit, ending in death at once, apparently from syncope.

Occasionally, dullness, inappetance, slight nervousness or stiffness are reported to have preceded the more

* Presented at a meeting of the Lancashire V.M.A., held at Manchester, on May 11th, 1921.

severe symptoms, and some cases, though few, are seen by the veterinary surgeon in this stage.

Temperature usually normal and pulse is notably lacking in tone and pressure. Tympany I have seldom noticed except in animals down and in a bad position. Bowels usually very active, passing soft fæces frequently and copiously. Only rarely is there a raised temperature. Sometimes there is sweating and hurried respiration.

In an animal violently convulsed, there are symptoms common to that condition, apnœa, violent movements of the eyeballs and clonic and tonic spasm of all the muscles.

In some cases persistent flexure of the neck is noted in an animal down, and occasionally a severe intractable case ends in coma, with dropping of jaw as in milk fever.

It is not surprising that the owner remarks on its great similarity to milk fever.

Causes.—Though associated mainly with cows in milk, it can hardly be taken as directly due to any parturient or post-parturient condition. It appears to be due primarily to digestive disturbance, other conditions being merely provocative and not actual causes.

Various dietary influences, such as over stimulating foods or overfeeding or over acridity of food, as hay from badly managed land or grass similarly grown.

In my own district, I think the main contributory cause is poor hay and poor pasture, both being poor as to plant content and growth. A decided diminution in the number of these cases would follow better attention to the grassland. Again it seems possible that the large amount of smoke all through the area may have an additional irritating effect. Of the precise nature of the irritant we are at present in ignorance. I am aware that some vaguely suggest ptomaines, toxins, ferments, etc., but it is difficult to know what is meant by these.

As a contributory cause we may consider the strain on the nervous system or rather the type of nervous system produced in cattle reared over many generations for milk-producing qualities.

Post-mortem results.—Considering the severity of the symptoms, post-mortem appearances are not so marked as might be expected. Chiefly they are an injected condition of the mucous membrane of the abomasum, small intestine and cæcum; other portions of large intestine not usually involved. The heart shows ecchymoses under the epicardium and endocardium.

Treatment.—Cases showing marked nervous symptoms, and these are the majority, give best results to inflation of the udder, and a good percentage give a quick recovery to this treatment. Tonics and stomachics should follow and care be taken as to dietary, and a warning given as to the likelihood of further attacks, these being by no means rare. Chloral hydrate may give good results in mild cases, but potassium bromide does not seem to be useful. The cases which do not rise in two or three days are best slaughtered.

Prophylaxis.—Its dependence on diet should be pointed out, and advise accordingly. Especially should premonitory symptoms, as failing in flesh or appetite, or nervous symptoms, be pointed to as things to be noted and treated.

Broncho-Pneumonia following Chloroform Anæsthesia.

By W. L. Richardson, M.R.C.V.S., Wadebridge.

Subject.—A well-bred five-year-old Shire mare.

On May 15th last, this mare had difficulty in foaling, the presentation being two fore limbs and a lateral deviation of the head and neck. As the mare was very irritable and resented handling, it was decided to administer chloroform.

A Cox's muzzle was used and a plentiful supply of air allowed. The head was not covered up. Altogether the mare was under the influence of chloroform about three hours, and the amount of chloroform administered was eight fluid ounces.

When she rose it was noticed she was lame in the near fore leg, the elbow was dropped, and the other joints flexed, suggesting a radial paralysis; however, the lameness improved during the next twenty-four hours and she went on well until May 20th, when she began to blow, and her temperature gradually rose to 105° F. She remained in this condition until May 26th, when she died.

Post-mortem Examination.—Acute broncho-pneumonia of both lungs; the right lung, which was uppermost during the operation, being much worse than the other. The uterus was contracted and healthy, the first rib was not fractured.

Undiagnosed Canine Osseous Disease.*

By J. H. White, M.R.C.V.S., Liverpool.

The head that forms the subject of my exhibit shows the most prominent lesions of a disease of the dog, concerning which I have to express my ignorance, and it is not with the object of enlightening others that I am now addressing you, but to gain if possible some definite information from canine practitioners. Before generalising I had better relate the history of the present case.

Subject.—A seven years old collie-fox terrier cross dog.

History.—About three months ago his owner consulted me concerning his jaws, which he asserted were injured as the result of a kick. I found the anterior portion of the face to be quite moveable up to just below the orbits. The lower jaw also bent easily upon the symphysis. Nearly all the teeth were loose, the walls of the sockets moving with them. I told the owner that the animal had an incurable disease of the bones of the jaw, but at his request prescribed treatment in the form of Parrish's chemical food, with bone meal and a good soft diet. On April 27th, the disease having progressed, he was destroyed in the presence of the owner. The carcase

* Presented on behalf of the above by A. W. Noel-Pillers, F.R.C.V.S., to the Lancashire V.M.A. at Manchester, on May 11th, 1921.

was well nourished, although some appreciable amount of flesh had been lost since I first examined him. A careful post-mortem revealed nothing wrong with the alimentary canal and respiratory organs. The heart was slightly fatty and contained a small ante-mortem clot. The kidneys were a little cirrhotic, and I noticed nothing wrong with the suprarenals. As far as I could see, all the bones of the spinal column and limbs were normal, but those of the lower jaw, face, and cranium were very soft, and in places could be cut quite easily with the knife. In places it would appear as if the bone had been reabsorbed. The teeth in this case, especially the molars, are well covered with tartar, and there was some pyorrhœa around the incisors.

The symptoms in such a case as this you can imagine better than I can state them.

Remarks.—I regard the above as a typical case of the condition, and I should be glad if someone would tell me the cause of it, its nature pathologically and the treatment. I do not profess to be a reader, but it certainly does not fit in under rickets, osteo-malacia, osteoporosis, or phosphorus poisoning. It certainly seems a little like bran or miller's disease of horses.

During this and last year I have seen three similar cases, one in a seven years old lurcher, another in a six years old fox terrier, and the third a mongrel, twelve months old. All were dogs. I am sure it is not in the nature of gross infection by way of the teeth sockets, for some had perfect teeth without visible spaces in the socket wall. I cannot understand that it is dietetic in origin, as great numbers of non-affected dogs are fed in the same way that these were.

In the mongrel case, the owner stated something was wrong with its mouth, and the anterior portion of the face went up at right angles when the mouth was opened.

In reflecting upon the above cases, I can call to mind several others which I have seen during the last four or five years. In some of them, teeth which moved easily were extremely difficult to extract without involving other structures. Professor E. E. Glynn, of Liverpool, has kindly undertaken an examination of a piece of bone removed from the lower left ramus.

Victoria Veterinary Benevolent Fund.

At a quarterly meeting of the Council of the Fund, held at 10 Red Lion Square, London, W.C. 1, on Thursday, October 6th, 1921, there were present:—Mr. S. H. Slocock, in the Chair, Mr. G. A. Banham, Major-General Sir L. J. Blenkinsop, Colonel J. W. Brittlebank, Messrs. F. W. Garnett, J. W. McIntosh, Sir Stewart Stockman, Messrs. H. Sumner, R. C. Trigger, and W. Jackson Young.

1. *Apologies for Absence.* The Secretary announced that letters of apology for absence had been received from Messrs. H. J. Dawes, S. H. Gaiger, F. L. Gooch, P. J. Howard, J. Ewing Johnstone, P. J. L. Kelland, G. H. Locke, T. McGuinness, E. A. West, J. Willett.

2. *Minutes.* The minutes of the previous meeting, having been printed and circulated, were taken as read and confirmed.

3. *Secretary's Report.* The Secretary submitted the following report:—

"Since the previous quarterly meeting the following donations and new subscriptions have been received:—

	Subscriptions. £ s. d.	Donations. £ s. d.
A. Spicer		10 10 0
Royal (Dick) Veterinary College collecting box		1 10 0
Bolton's Cinema, per E. A. West		21 0 0
Miss Woodger		2 2 0
Prof. R. J. Linton	1 0 0	
M. Tailby		1 1 0

A letter has been received from the Executors of the late J. Hatch, announcing that this member has left provision in his will for a bequest of £100 free of duty to be made to the Fund.

There are fifty members in arrears with their subscriptions, although two reminders have been sent out. One or two members have expressed surprise that they should be required to pay regularly. While sympathising with them in the present financial difficulties, it is important to point out that our grants must be paid regularly, and that the amounts we are paying in some cases are woefully inadequate. Members are earnestly appealed to to support the Fund as generously as possible, and to pay their promised subscriptions regularly at the beginning of the year."

It was resolved—

That the Secretary's report be approved.

4. *Cases.* No. 57, Miss M. The Secretary reported on this case and submitted two medical certificates showing that the state of the applicant's health was such as to prevent her earning her livelihood for the present.

It was resolved—

That the grant of 10s. per week be continued, and that the matter of additional assistance be left in the hands of the Executive.

No. 58, Mrs. W. An application was received from a widow aged 65, whose husband died in 1897. Satisfactory references were received, and it was resolved—

That a grant of 10s. per week be made.

No. 59, Mr. J. M. An application was received from a member aged 68, whose total income did not exceed £70 per annum. Letters in support of the application were received from members of the profession, and it was resolved—

That a grant be made not exceeding 10s. per week at the discretion of the Executive Committee.

NOTE.—The above-mentioned grants involve an additional cost to the Fund of £52 per annum. In order to meet this charge it is necessary to obtain 100 additional subscribers to the Fund at the minimum subscription of 10s. 6d. per annum. Will those members of the profession who do not at present

subscribe remember the needs of the Fund and send in a subscription to the Secretary at 10 Red Lion Square, London, W.C. 1.

The Malcolm Memorial Fund.

The second list of subscriptions from members of the profession to the Malcolm Memorial Fund is as follows :—

	£	s.	d.
Already acknowledged in the *Record* of May 28th	117	19	0
J. R. Carless, Esq.	20	0	0
Sir Stewart Stockman	5	5	0
J. R. Hayhurst, Esq.	5	0	0
W. Trigger, Esq.	5	0	0
H. L. Pemberton, Esq.	2	2	0
L. W. Heelis, Esq.	2	2	0
J. Reynolds, Esq.	2	2	0
R. Murray, Esq.	2	2	0
W. Reekie, Esq.	2	2	0
Prof. J. McQueen	2	2	0
G. P. Male, Esq.	2	2	0
A. and R. H. H. Over	2	2	0
Messrs. Duckwood and Prince	1	1	0
A. Renfrew, Esq.	1	1	0
H. T. Hughes, Esq.	1	1	0
C. W. Tindall, Esq.	1	1	0
W. H. Beddard, Esq.	1	1	0
Subscriptions collected by A. Gofton, Esq., F.R.C.V.S. :—			
G. Mitchell, Esq.	10	0	0
A. Gofton, Esq.	5	5	0
A. Baird, Esq.	5	5	0
J. Brown, Esq.	2	2	0
W. Peggie, Esq.	2	2	0
T. D. Connochie, Esq.	2	2	0
W. D. Connochie, Esq.	2	2	0
O. C. Bradley, Esq.	1	1	0
A. Edgar, Esq.	1	1	0
J. Lindsay, Esq.	1	1	0
T. M. Inglis, Esq.	1	1	0
John Taylor, Esq.	1	1	0
Subscriptions collected by H. J. Dawes, Esq., F.R.C.V.S. :—			
Prof. Hobday	3	3	0
Prof. Penberthy	1	1	0
H. Caulton Reeks, Esq.	2	2	0
Hugh Begg, Esq.	1	1	0
W. Jackson Young, Esq.	2	2	0
Henry Taylor, Esq.	1	1	0
Subscriptions collected by J. W. McIntosh, Esq., F.R.S.E. :—			
Gen. Sir Layton Blenkinsop	1	1	0
Capt. Bryden	0	10	0
G. A. Bushman, Esq.	1	1	0
H. W. Eaton, Esq.	1	1	0
M. Carroll, Esq.	1	1	0
B. Cockerton, Esq.	1	1	0
W. S. King, Esq.	1	1	0
Herbert King, Esq.	1	1	0
J. W. McIntosh, Esq.	1	1	0
H. J. Parkin, Esq.	1	1	0
— Sampson, Esq.	1	1	0
G. H. Wooldridge, Esq.	1	1	0
H. H. Worrow, Esq.	1	1	0
Major Catmur	0	10	0
H. A. MacCormack, Esq.	0	10	0
Jas. Seton, Esq.	0	10	0
J. Willett, Esq.	0	10	0
Subscriptions collected by J. O. Powley, Esq., M.R.C.V.S. :—			
J. O. Powley, Esq.	2	2	0
J. McCall, Esq.	1	0	0
G. T. Matthews, Esq.	1	0	0
J. Jackson, Esq.	1	0	0
D. A. E. Cabot, Esq.	0	10	6
V. J. Hare, Esq.	0	10	6

(*Signed*) R. C. TRIGGER, *Chairman.*
BRENNAN DE VINE,
Treasurer and Secretary,
Holliday Street Wharf, Birmingham.

Association Reports.

The Southern Branch of the National Veterinary Medical Association.

DISCUSSION ON "BOVINE ABORTION AND ITS CONTROL."

(*Continued.*)

Mr. HOGBEN said he understood from Professor Edwards that the bull could not be regarded as a carrier of the contagion; but could not a bull be a carrier of the contagion by reason of emissions of semen on the stall and in the field? He would like to know how a bull amongst a herd of aborting cattle should be dealt with. In one particular case which had come under his notice he had asked the owner if he had wanted to use the bull for a couple of months, and, on receiving a negative reply, he had given the bull a dose of vaccine in the same way as he had given it to the cattle. The question occurred to him, what was to be done? Was the bull to be vaccinated as well as the cattle?

Another question he would like to ask was as to how long after pregnancy it was safe to apply vaccination.

He would also like to know what was the best method of obtaining blood for the tests.

Mr. MALE thought that Professor Edwards' contribution should be called more than a paper; it should be termed a treatise on the subject of bovine abortion. Some time ago he had said to Professor Edwards that what the busy practitioner required was a résumé of all the recent available knowledge

with regard to many of the diseases met with in animals. He had stated that it was impossible for busy practitioners to read foreign journals and to keep themselves absolutely in touch with current information. In the last few months Professor Edwards had supplied that necessary information in two magnificent résumés on two most important subjects connected with veterinary practice, namely, joint-ill in the foal and abortion in cattle, and he was sure every member of the veterinary profession was extremely indebted to him for that work.

There were one or two points upon which he would like to have information. There seemed to be some doubt as to how many times a cow did abort. Professor Edwards in his paper said that experience in this country indicated that cows did not generally abort at two successive pregnancies. Bang said that "luckily very few cows continued to abort five times, and that, although most cows only aborted two and three following years, sometimes it happened that they aborted after one, two, or three normal parturitions." He (Mr. Male) had been speaking to an authority on the subject a short time previously, who had said that cows usually only aborted once. He had replied that his own experience had been that they aborted very often twice, and that it was not at all rare for them to abort three times. They might even calve once or twice or three times normally and then abort again. It seemed a rather important point in regard to vaccination, because, if a cow only aborted once, and she got immunity from that abortion, then there was no need to vaccinate her. Some authorities had told him that that was the case—that there was no need to vaccinate a cow that had aborted once, and that veterinary surgeons should confine themselves to vaccinating heifers. Personally he did not agree with that at all: he thought cows aborted two or three times, and that, as far as treatment went, they needed vaccinating for a number of years. He had been following that line of treatment for about eight years, and had vaccinated some thousands of cows. In some herds he had left off after about four years, as he thought that then they ought to be immune, but further cases of abortion had occurred, and his client had insisted on him vaccinating them every year, and he had continued to do so.

There seemed to be two schools of thought with regard to treatment. There was the isolation school, and there was the vaccination school. It was quite obvious to which school Professor Edwards belonged, because he said that vaccination was really a treatment of despair, and that it should not be entered upon lightly. The isolation treatment was no doubt very good in regard to pedigree herds, where there were perhaps not large numbers, where they were free from tuberculosis, where there were many buildings and farms in which they could be isolated, where the blood test could be taken frequently, and where the owner would stand the expense of having the animals periodically tested and have the blood examined. Then the question arose in those pedigree herds: What was to be done with the cows that reacted? How long did they remain infected? He would be glad to hear from Professor Edwards whether he had any statistics showing how long they did remain infected after they had reacted to the blood test.

A client of his was going to sell some cows, and desired to have them tested with tuberculin and the blood examined so that he could state that they were not only free from tuberculosis but also from abortion. After examination it was found that there was a large number of reactors both to the tuberculin test and to the blood test. It was a large herd, and the question was how many herds that one herd was going to be split up into in order to get proper isolation from the two diseases. Some of the cows which had reacted to tuberculin were free from abortion, and some that were free from tuberculosis had aborted. Then there were the young herd, the milking herd, the calves, and so on. Therefore, in order to get complete isolation of the two groups, it meant dividing the herd up into about eight, which was quite impracticable, and could not be done. His advice had been first of all to get rid of the tuberculosis and then to attack the abortion. Isolation was certainly not applicable to many herds. He (Mr. Male) was inclined in most cases to follow the vaccination treatment. At the present time the milk question was a very burning one, and the milk supply had to be kept up. Cows had to be brought into the herd. They were constantly changing, and could not be isolated. Large herds had been formed all over the country, and with the vaccination treatment every cow could be injected as she calved; there need not be the worry of isolation. Of course, one disinfected and took ordinary precautions, but on a farm it was absolutely impossible to isolate properly. A few years ago some authorities said that when a veterinary surgeon took living bacilli on to a farm he was doing a most terrible thing for his client. When he (Mr. Male) first started the vaccination treatment he had gone in fear and trembling when carrying the living culture. He had been most careful not to inject it into pregnant cows, but he had soon found that there was practically no danger at all. Some pregnant cows had been vaccinated by mistake, but there had not been a single abortion. The argument had been put forward that the vaccination treatment spread the disease. He had no evidence—he did not know whether Professor Edwards had any evidence—to show that cows which had been vaccinated had spread the disease to other cows. If they did not, then there was no fear of infection at all, and there was no doubt that the vaccination treatment, in nine herds out of ten, was the best one to pursue. He would like to ask Professor Edwards how many years it was before cows that had been vaccinated became immune.

With regard to the agglutination test it would be interesting to know whether the reaction which was given showed that the animal was recently infected, or whether it had recovered from the disease. He understood that the reaction was due to anti-bodies which formed in the blood. If that was so, surely the cows that reacted were the ones which had at any rate a certain amount of immunity. They were cows which should be kept, as they had those anti-

bodies in their blood. He would like to know whether there was anything in the test to show whether those cows were dangerous animals, which were giving out the bacilli, or whether they were animals which ought to be kept, and which had recovered from the disease.

He had found that cows which aborted after they had been vaccinated nearly always had abscesses formed in the neck. Either there was an infection of the vaccine or there was an infection of the cow; he did not know which.

In Berkshire during the past eight years they had been keeping records. Unfortunately those records were not at present available, but they soon would be, and they would show the astonishing success of the vaccination treatment. The first batch of heifers with which he had had to deal in connection with the matter comprised twenty-four. Twenty were vaccinated and four remained as controls. All the twenty carried their calves to the full time, and all the four slipped their calves. In another big herd of about 150 cows, 90 per cent. slipped the first year. All of them were vaccinated, with the result that the following year only 3 per cent. of the cows aborted.

In conclusion, he, as a practitioner, desired to thank the laboratory workers for the immense amount of work which they had done on the subject. The Press and other people were saying that the veterinary profession was not sufficiently scientific, and did not do enough research work. Anyone who read Professor Edwards' paper would realise to some extent the immense amount of work that had been done at the Royal Veterinary College, London, and at the laboratory of the Ministry of Agriculture. That work had been of immense benefit to the profession, and he desired to pay his tribute to it.

Mr. BROAD said from the preventive point of view, in his opinion much the best method to follow would be, instead of the present indiscriminate buying of heifers and cows, to make some arrangement to take calves straight from birth.

Mr. HOGBEN desired to ask Professor Edwards' opinion about a case which had recently come under his notice, in which three or four pedigree shorthorn cows had aborted. Samples of the blood had been taken from those animals and sent to be tested, and all gave positive reactions. The animals were afterwards vaccinated—in May last. The other evening the owner had reported to him that all three cows either had remained sterile, or, if they had become pregnant, had aborted within a few weeks of service. As he understood, they had taken service again within three weeks or a month. He would be glad if Professor Edwards would state if he would advise that the cows should be re-vaccinated and samples of the blood taken again, and then the cows re-vaccinated if they showed a positive reaction.

As to Mr. Male's point about the danger of carrying the culture about, he would like to know whether there was any special syringe which Professor Edwards recommended for use.

As to whether the bull should be injected as well as the cows, he had had under his charge on two farms, some time ago, a big herd of Sussex cows, in which four or five years previously cases of abortion had occurred. He had injected the animals on one farm with live vaccine, since when there had been no cases of abortion. On the other farm, however, cases of abortion had occurred. Another veterinary surgeon had been called in to consult with him in reference to those animals, who had insisted that there was a tremendous risk in using live vaccine, and who persuaded the owner to inject with dead vaccine. That had been undertaken too recently for him to be able to state whether any good results had been brought about, but personally he had not been at all strong on the use of dead vaccine; from the experience he had gained from injecting live vaccine into the animals on the one farm, he was strongly in favour of live vaccine.

He understood from Professor Edwards that young animals could be vaccinated in early pregnancy, but that older animals should not be vaccinated when they were pregnant. Mr. Male had said that pregnant animals which had been vaccinated by mistake had not afterwards aborted. Perhaps that had been in the very early stages of pregnancy. He would like to ask Mr. Male whether that was so or not?

Mr. MALE replied that most of the animals were in early pregnancy. They were of all ages. In fact, one or two farmers had tried to induce him lately to inject the vaccine into the pregnant animals. He had not consented to do that, but he did not think it would do any harm.

Mr. LITTLE said with regard to the virulence of the bacillus, it had struck him that perhaps the virulence of the bacillus might be dying out somewhat. He did not know whether it was a mere accident or not, but he did not now seem to get the cases of abortion taking place early in pregnancy as he used to. Years ago he used to get abortion in the very early stages of pregnancy, but at present it seemed to be the case that the cows carried their calves much nearer the full time. He understood Professor Edwards to say that young heifers in calf could be vaccinated with impunity. That seemed to bear out Mr. Male's opinion, that animals which were in calf could be vaccinated without any ill-effects. He (Mr. Little) had himself vaccinated a few pregnant cows accidentally, and some had carried their calves the full time, but others had not. Anyhow, he had had some animals slip their calves after they had been vaccinated, and he had put it down to the vaccine. But in doing some young animals he had noticed that quite a lot of them which were accidentally vaccinated carried their calves very nearly to the full time or to the full time.

He was of the opinion that an animal which had once aborted should be vaccinated. In his opinion an animal which had aborted once was liable to abort again. He did not agree with the statement that they only aborted once. That had not been his experience, and he thought it could not have been the experience of farmers generally, as he had found that farmers were very anxious to sell animals which

had aborted once. Farmers had told him that if cows aborted once they would do so again. If that was not the case, then the farmers naturally would not be so anxious to sell them.

He would like to know how long it was desirable to wait before vaccinating an animal that had aborted. It sometimes took time for the uterus to get back to its normal state, and one could not tell that unless one made a blood test, or probably took a swab. After nine or ten days an ordinary case of abortion generally looked fairly normal, and the owner might want the animal vaccinated there and then. Would it be wise to do that, or should one wait a matter of a month, or even longer ?

With regard to the Epizootic Abortion Order, although he welcomed such an Order, and thought it would do good if carried out, he thought there would be considerable difficulty in getting it put into effect. For instance, if an animal was sent on to the market, who was there in the market to say that the animal had or had not aborted ? The only man who knew that was the cowman or the owner, and probably even they did not know. He could not see himself how the Order could be carried out properly, as it should be, because of the difficulty there would be in saying whether or not the animal had aborted. If the disease was made notifiable, then more could be done. It would then be up to veterinary surgeons to report those cases.

With regard to the after-effects of abortion, in some instances they were very serious. Why that should be he did not know, but in some herds it was found that large numbers of animals which aborted remained sterile. One got schlerosis of the os and other conditions which were very difficult to treat. He thought there was much room for investigation into the after-effects of abortion. He did not think the present treatment was at all satisfactory, and he thought there was much to be learned in that connection.

One question he would like to ask was : Was there any connection between mastitis and abortion ? One found in herds where there was abortion that one got mastitis. If the abortion bacillus would cause a lesion in the bull's testicle, why should it not cause a lesion in the cow's udder ? Had it ever been proved that cases of mastitis were due to the abortion bacillus ?

Professor HOBDAY asked if Professor Edwards had had any experience of the disease in connection with dogs. It happened two or three times a year that in some of the big kennels of the country an outbreak of contagious abortion occurred which was very troublesome to deal with, and which cost the owners a very large amount of money and inconvenience. His experience had been that the outbreak generally occurred at the end of or towards the end of pregnancy, and, curiously enough, his enquiries had elicited that no particular dog or dogs could be blamed as the cause of the spread of the contagion, and that it did not as a rule occur year after year.

He would also like to ask whether one was justified in considering that the organism in cattle was contagious to other animals on the farm, and whether there was any experience in England of it being communicable to human beings. He did not think any case had ever been reported in Great Britain of it being communicable to the human being, but he knew that reports had been made abroad of its contagiousness to women, and that women milkers had been warned about it.

Mr. BAKER remarked that it had been said that an ounce of experience was worth a pound of theory, and he would like to give an account of one small experience which had been reported to him. The bailiff of a large estate (a practical, intelligent man, who was also a Bachelor of Science) had told him that his experience was that if he had his cattle injected in the present year they would certainly not abort, but that if he missed injecting them, next year they would abort. That was somewhat contrary to what Professor Edwards had stated.

Professor Edwards had said that if calves were infected, the infection soon passed out of their system in the great majority of cases. If that was so, would not they be useful animals from which to take serum to apply to other animals ?

He had been very pleased to hear Mr. Male's remark, that in his experience pregnant cattle could be injected with impunity. That was a very great point in the veterinary surgeon's favour, as he was strictly informed in the instructions on no account to inject cattle that were pregnant.

As to the point raised by one speaker, to the effect that animals which had developed abscesses in the throat or wherever the injection was applied, had not proved to be immune, he could not say that that had been his experience. On one or two occasions he had had cases of abscesses forming, but he had not heard the owners of those cattle say that the subjects of those abscesses had eventually aborted.

He thought most veterinary surgeons had been under the impression that the bull did carry the infection. It was only a day or two ago that the question had been asked of him as to whether it was safe to put the bull to other cattle that had been in contact with aborted animals. His reply had been that after a few days they would certainly be safe, but that it was not advisable to put the bull to them straight away. It now appeared, after the statements which had been made that afternoon, that if a bull had been in contact with an animal that had recently aborted, it was quite possible, by dropping the semen, that he would also have dropped some of the infected material, and so infect the pasture, and that would account for the bull being credited with the carrying of the disease.

Mr. Little had asked whether there was any connection between mastitis and contagious abortion. That had been rather an interesting question to him. It was only a week or two ago that he had been asked what he could do to prevent repeated attacks of mastitis in his cattle. On that farm he (Mr. Baker) had had more trouble with contagious abortion than he had had on any other farm with which he had had to do.

(To be continued).

Lancashire Veterinary Medical Association.

A general meeting of the above Association was held at the Grand Hotel, Manchester, on Wednesday, 11th May, at 3-30 p.m. The chair was taken by the President, Mr. A. W. Noel-Pillers, and the other members present were Messrs. Ackroyd, Butters, Burndred, Brittlebank, Curbishley, Darnell, Edwards, Giblin, T. Hopkin, F. Hopkin, Ingram, Locke, New, Oddy, Rigby, Sumner, Stent, Spruell, Taylor, Wright, Wadsworth, Whitehead and Wolstenholme.

Apologies for unavoidable absence were received from Messrs. Blackhurst, Kenny, McKinna and E. F. Wood.

It was proposed by Mr. GIBLIN, seconded by Mr. STENT, and carried unanimously, that the minutes of the last meeting as circulated in the *Veterinary Record* be taken as read.

Obituary.—The PRESIDENT announced with deep regret the death of Mr. Whitham, who had quite recently been elected a member of the Association. He was quite sure that the members would join with him in expressing regret at Mr. Whitham's decease. A wreath had been sent on behalf of the officials and members of the Association.

Colonel BRITTLEBANK proposed that that Association record its deepest sympathy with Mr. Alexander Lawson in the loss which he has recently suffered. It was within the knowledge of many that Mrs. Lawson recently passed away, and he would like to suggest that the secretary be instructed to convey to Mr. Lawson the sympathy of the members of the Lancashire Veterinary Medical Association in the loss which he had sustained, and the hope that he himself might soon be sufficiently restored to health to come amongst them again.

This was carried unanimously.

South Eastern.—The SECRETARY read a letter from the South Eastern Veterinary Medical Association, dated the 7th May, intimating that a combined meeting of the Royal Counties, Southern Counties, and South Eastern Veterinary Associations was being held on the afternoons of 22nd and 23rd June, at Folkestone, during the session of the Sanitary Institute Congress, and that they were very desirous of welcoming members of other Associations from a distance.

The PRESIDENT said he would be very glad to know if there were any persons attending the Congress; if so, they would no doubt be very pleased to accept this kindly invitation.

Mr. BURNDRED intimated that he was attending the Sanitary Congress, and expressed his willingness to represent the Lancashire Veterinary Medical Association at this meeting. The Secretary was requested to convey this information to the Secretary of the South Eastern Veterinary Association.

Election of Council.—The Secretary made an announcement with respect to the proposed issue of circular in support of candidates, and it was proposed by Colonel Brittlebank, and carried unanimously, that the circular originally approved be issued without delay.

Nominations.—The following gentlemen were nominated for membership of the Association:—Mr. E. Greenway, M.R.C.V.S., Church Street, Frodsham, by Mr. E. H. Stent; Mr. W. Hall, M.R.C.V.S., "Claremont," Dryclough, Royton, by Mr. J. Spruell, seconded by Mr. A. W. Taylor; Mr. J. E. Holroyd, M.R.C.V.S., Knott Mill, Manchester, by Mr. J. Spruell; Mr. Robert Crawford, M.R.C.V.S., Knott Mill, Manchester, by Mr. J. Spruell.

New Members.—Proposed by the PRESIDENT, seconded by Mr. WRIGHT, and carried unanimously, that the following gentlemen be elected members of the Lancashire Veterinary Medical Association:—Mr. R. Watson, M.R.C.V.S., St. Helens; Mr. T. G. Millington, M.R.C.V.S., D.V.H., Ministry of Agriculture; Mr. C. W. Loy, M.R.C.V.S., Warrington.

INSURANCE FEES.

The Secretary intimated that the Council had given serious consideration to the circular letter from the General Secretary of the National Veterinary Medical Association, re fees paid by insurance companies, and submitted the Council's recommendations as follows:—

Minimum fees for examining horses and cattle for insurance companies:—

One animal, insured value £50	8/-
Each additional animal	3/-
One animal, insured value £50—£100	10/-
Each additional animal	5/-
One animal, insured value £100—£150 ...	12/6
Each additional animal	7/6
One animal, insured value £150—£200 ...	21/-
Each additional animal	15/-

Special fees for more valuable animals.

Mr. GIBLIN complained of the very low fees paid by insurance companies, and said he had refused this work, but had found that other veterinary surgeons had accepted the work at the low fees paid.

Mr. H. SUMNER joined issue on the whole system of payment for veterinary inspection of animals proposed for insurance. He, for instance, pointed out that it was customary to pay the lowest fees for animals of comparatively small value, whereas, as a matter of fact, in such cases it was probably necessary for the veterinary surgeon to exercise greater care in his examination of those animals than in the case of animals of high value. He considered that the whole system of graduation was bad, and that all fees should be on a flat rate basis. He had also heard and continued to hear many complaints of conduct by professional brethren such as Mr. Giblin had complained of.

Mr. EDWARDS thought that most of the insurance companies were at present paying the fees as now proposed. He derived his information from a list recently shown to him by an Insurance Company at Chester, which corresponded to the list of fees now before the meeting.

This was denied by Mr. Wolstenholme, who said that one or two companies might be paying these fees, but the majority were not.

It was then proposed by Mr. GIBLIN, seconded by Mr. NEW, and carried unanimously, that the scale of fees as suggested by the Council be approved and forwarded to the National Veterinary Medical Association.

A NERVOUS DISORDER FOLLOWING GASTRO-ENTERITIS IN CATTLE.

Mr. W. ACKROYD contributed an informative paper upon "A Nervous Disorder following Gastro-enteritis in Cattle."

[A detailed account of this appears in our clinical column elsewhere in the present issue.—ED.]

Mr. CURBISHLEY, in opening the discussion, said he was delighted that a subject of such interest and importance to the cattle practitioners should have been brought to notice, especially as cattle practice was now likely to become a very important part of their work. He must confess that he was not the right person to open the discussion, for the reason that he did not remember ever having met with a case of this description in Cheshire, and must admit that he did not recognise the condition. He had a couple of cases a little while ago, however, that might have had some slight relationship to those mentioned by Mr. Ackroyd; the first, which he imagined to be a threatened epilepsy, recovered entirely after a couple of doses of chloral given in the form of a ball, but was followed by another case within the next day or two. Enquiry showed that the whole herd were receiving a very heavy ration of beanflour. A laxative dose to each animal and a change to a lighter diet stopped the trouble altogether, and there were no further cases.

Mr. Ackroyd supposed the cause of this disease to be a poison, and no doubt he was quite right, but whether that was in the form of an auto-intoxication, a toxæmia, an alkaloid, or some other form of poisoning, he would not like to say, but he thought it was a case in which the investigation of a laboratory expert was called for, as he would be able perhaps to discover the actual cause by an examination by cultures, etc., from the bowel or its contents. Until they had definite knowledge of the actual cause, they could not very well discuss the disease.

It certainly seemed that the condition had primarily a gastric origin, although later the symptoms were, as Mr.

Ackroyd stated, of a nervous order, and might be something like the dyspepsia mentioned by Mr. Begg, in Hoare's book, which reminded one, although it is not likely to have any bearing on those cases, that Hoare gave the veterinary profession a very thorough "wigging" because they did not, in troublesome dyspeptic or other occult diseases, resort systematically to the thorough testing—both microscopical and chemical—of the urine, as he stated that by that means much light is thrown upon many otherwise puzzling conditions of disease.

He was sorry he had not been able to add anything useful to the discussion, but would like to thank Mr. Ackroyd very much for his paper.

Colonel BRITTLEBANK, in congratulating Mr. Ackroyd, said he never came without presenting original material, carefully compiled, and for a busy practitioner presenting evidence of remarkable persistence in the collection of detail. He was, further, quite sure that the Association had benefited a very great deal by the contributions which Mr. Ackroyd had made in the past. Veterinary literature was remarkably devoid of material which might be of assistance to practitioners in the class of cases such as described that day. He personally had nothing of any value to contribute to the discussion, as it must be readily understood that opportunity of studying such cases did not frequently present themselves to veterinarians engaged as he was, nor probably were they qualified (it all one hears about veterinary inspectors be true) to attempt elucidation of these problems when they did arise.

However, in the course of a good many years' experience it was occasionally one's fortune to come across cases of distinct professional interest which were outside the scope of his duties, which were chiefly those of a policeman.

Some years ago, however, he met with a number of cases such as described in the practice of a friend of his, and a pretty exhaustive search for bad conditions which might give rise to the symptoms was made, and the only result was that certain plants of the buttercup species, the "Ranunculus reptans," were found extensively distributed, and these were identified by the Professor of Botany at the Manchester University, and pronounced by him to be poisonous. Certainly it might have been only a coincidence, but a vigorous attempt was made to get rid of the plants of this species, and the cases disappeared.

He would like to ask Mr. Ackroyd whether the condition occurred in his experience principally in locally-bred cattle, or in cattle imported into the district, whether it occurred at any particular age, or whether in his experience there was no age at which the symptoms were more acute. He had heard the remarks with regard to the absence of lime in the soil with interest, and no doubt a liberal supply of lime was necessary to promote crops of grasses to the exclusion of weeds and noxious plants, but the cases which he had seen occurred principally in Derbyshire, in districts in which there could be no possibility of any deficiency in lime. He presumed from Mr. Ackroyd's description of cases that they occurred with equal frequency whether the animals were housed or during those seasons when they were out at grass.

He begged to thank the President for calling upon him, as it gave him the opportunity once again of expressing his gratitude to Mr. Ackroyd.

Mr. EDWARDS related a case in his practice of cows which were struck by lightning. The symptoms were the same as those described by Mr. Ackroyd, and the man who owned the cows thought they had been poisoned by rat poison. A sample was sent to laboratory experts in Chester, who reported that they could find no trace of poison, but expressed the opinion that it was caused by the food given to these animals.

Mr. BURNDRED said he did not know anything about the clinical symptoms of the case. There was a great shortage of lime in the Blackburn district, and the majority of the cases he met with were in animals imported from Ireland. In listening to the discussion he was reminded that at times the medical and veterinary professions did not come closely enough together, but he was also reminded that members of the veterinary profession did not come close together.

The colon of small pig, showing peculiar lesions of swine fever, was exhibited by Mr. J. B. WOLSTENHOLME, F.R.C.V.S.

The PRESIDENT (Mr. A. W. Noel-Pillers, F.R.C.V.S.) presented, on behalf of Mr. J. H. White, M.R.C.V.S., Liverpool, the head of a collie fox terrier, showing peculiar lesions of an undiagnosed disease of the bones of the jaws.

[A full description of the exhibit appears in our clinical column.—ED.]

JOHN SPRUELL, *Hon. Secretary.*

Notes and News

Norwich Wrongful Description Case.

At the Norwich Guildhall, on the 2nd inst., Herbert Rix, of Heigham Street, was summoned on the information of Horace Charles Sexton, on behalf of the Royal College of Veterinary Surgeons, for describing himself as a "veterinary surgeon," while not being on the register of veterinary surgeons, on October 25th.

Mr. A. T. Chittock appeared for the prosecution and Mr. E. Reeve for the defence.

Mr. Chittock said that defendant had for many years past carried on business in the city, and that it had recently come to the knowledge of the R.C.V.S. that he used the words "veterinary surgeon" after his name, the words being printed in large letters over his place of business, with the words "Shoeing Forge." The College had no desire to press the charge, but they felt bound to protect both their members and the public. He would add that at the bottom of the board over defendant's premises, on which the words "veterinary surgeon" appeared, was also "14 years with the late Mr. J. Pollock."

Mr. Reeve said he accepted Mr. Chittock's facts. What the defendant had desired was to describe himself as the proprietor of a shoeing forge, and that for 14 years he had been connected with the late Mr. J. Pollock, who was a veterinary surgeon. As he informed defendant it was calculated to mislead. He admitted the offence, and expressed regret for his client, who would not again represent himself as a veterinary surgeon. His client had since painted out the offending words.

Defendant was fined 10s. and £1 1s. costs.—*Eastern Daily Press.*

Mr. W. T. Olver successfully sought re-election to the Tamworth Town Council on Tuesday, November 1st. There were four vacancies, and Mr. Olver secured second position amongst the ten candidates for election.

EXPORT TRADE IN HORSES.

In the House of Commons Major Barnston, replying for the Minister of Agriculture, informed Sir J. Butcher that the measures that had been taken by the Ministry of Agriculture to raise the standard of fitness of horses exported to the continent had resulted in stopping the export trade in worn-out horses, and in restricting the trade to horses which were fully fit for work. The high

standard of fitness now enforced had also resulted in the slaughter in this country of a much larger proportion than formerly of horses which were intended for food on the continent. As a result of conferences which took place between the Ministry and representatives of the Dutch and Belgian Governments during the past summer, dressed carcases of horses slaughtered in this country and officially inspected would be accepted in Holland and Belgium.

In awarding £30 damages to a farmer whose cow had been killed on the road by a motor car, Judge Roberts remarked that there was no "wrong side" for cows. They were not sentient animals, and could not read Acts of Parliament. Motorists must be prepared to stop on the instant when cows were about on the road. At one time motorists were allowed on roads only if a man preceded them with a red flag; now they dashed about anyhow, but the cows must be respected.

Correspondence.

Letters to the Editors should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

Meat Inspection Committee.

Sir,—I read with pleasure your editorial, in which you gave credit to Mr. T. Parker for his work on this committee.

As the Royal College of Veterinary Surgeons did not send any person to give evidence before the committee, I think you will agree we have obtained as much as we expected.

I have been in touch with Mr. Parker during the time the committee performed its work, and I can assure you that the profession owes to him a debt of gratitude, especially as he often attended when his health was far from being satisfactory.

In every point under consideration his first interest was for the health of the public, then for justice to the butcher and farmer, but at the same time he never missed an opportunity to safeguard the interests of his profession and tactfully to press forward its legitimate claims; while his practical knowledge of the subjects under consideration was of inestimable value.—Yours faithfully, T. D. YOUNG.

Sussex House, Howard Road, South Norwood, S.E.
November 5th, 1921.

Army Veterinary Service.

LONDON GAZETTE.—WAR OFFICE.—REGULAR FORCES.

November 1st.—The following Majors to be Lieut.-Colonels:—R. C. Cochrane, C.B.E., F.R.C.V.S. (July 3rd); A. G. Todd, C.B.E., D.S.O. (October 15th).

Diseases of Animals Acts, 1894 to 1914. Summary of Returns.

Period.	Rabies. Cases Confirmed. Dogs.	Rabies. Cases Confirmed. Other Animals.	Anthrax. Outbreaks confirmed.	Anthrax. Animals attacked.	Foot-and-Mouth Disease. Outbreaks confirmed.	Foot-and-Mouth Disease. Animals slaughtered as diseased or exposed to infection.	Glanders (including Farcy).* Outbreaks reported by the Local Authorities.	Glanders (including Farcy).* Animals attacked.	Parasitic Mange. Outbreaks reported by the Local Authorities.	Parasitic Mange. Animals attacked.	Sheep Scab. Outbreaks reported by the Local Authorities.	Swine Fever. Outbreaks confirmed.	Swine Fever. Swine slaughtered as diseased or exposed to infection
GT. BRITAIN.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Week ended 29th October, 1921	...	...	9	9	...	...	...	...	8	12	8	26	15
Corresponding Week in 1920	1	...	12	13	2	200	1	3	20	28	13	23	12
Corresponding Week in 1919	...	...	9	9	10	638	1	1	41	52	2	46	31
Corresponding Week in 1918	10	...	2	2	...	...	...	...	43	78	5	24	14
Total for 44 weeks, 1921 ...	22	1	419	535	43	2958	11	41	1853	2825	444	1060	394
Corresponding period in 1920	29	...	355	426	77	9934	12	21	3264	5374	344	1610	657
Corresponding period in 1919	146	5	185	242	59	2400	22	55	4330	8595	268	1963	921
Corresponding period in 1918	55	2	206	237	3	40	28	77	3743	7014	270	1204	477

NOTE.—The figures for the current year are approximate only. *Excluding outbreaks in Army horses.

IRELAND. Week ended 29th October, 1921	...	...	...	...	...	...	Outbreaks 1		1		4		2
Corresponding Week in 1920 ...	...	...	...	...	...	...	1		4		...		...
Corresponding Week in 1919 ...	...	...	...	...	...	...	2		3		...		...
Corresponding Week in 1918 ...	...	...	...	...	...	...	1		6		1		9
Total for 44 weeks, 1921	1	1	7	77	...	...	71		229		100		54
Corresponding period in 1920 ...	1	1	...	...	1	3	90		284		12		34
Corresponding period in 1919 ...	...	...	...	...	1	1	132		224		30		93
Corresponding period in 1918 ...	2	2	...	...	...	...	93		262		25		85

NOTE.—The figures for the current year are approximate only.